STS-98 Run 2 *2815764 *

PROCESSING OPERATIONS CONTROL
OMI PLANNING SHEET

USA VM 062

Wad Number	SITE	Elem CD	End Item	
V6028.001-A03-R02	DFRF	V	104 FLT: 023	DATE: 01/06/2001 TIME: 11:35:27

Title: POST FLT ORB REUSABLE SURFACE INSULATION RUNWAY ENGINEERING WALKDOWN

Sub Element/Zone: 30 100

Project Work Order No.	Hazard:	SFOC Safety	
	☐ Yes ☒ No	N/A	☒ Local Copy ☐ Firing Room Copy

Authorizing Document	Material & Equipment:	MICR Req'd	OMRS:
ORB423	☐ Yes ☒ No	☐ Yes ☒ No	☒ Yes ☐ No

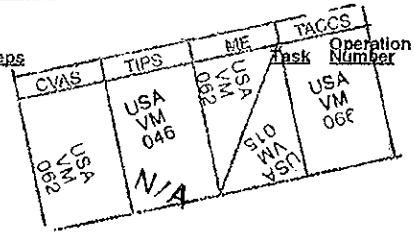
PERFORM THE FOLLOWING:

Pre-Ops Setups

Task	Operation Number	Seq	Steps	Task	Operation Number	Seq	Steps

OPS Support

Task	Operation Number	Seq	Steps	Task	Operation Number	Seq	Steps



Operating Instructions

Task	Seq	Steps	Task	Seq	Steps
	010				
	020				

USA VM 011

Post Ops

Task	Operation Number	Seq	Steps

USA VM 047

Appendices

Task	Seq
N/A	

USA VM 031

Subtask WAD's

N/A

Planner	Ext	QC Closure	Date	Page
AARON MCCLOUD	6523		FEB 23 '01	1 OF 1

USA 32-82 Rev 05-99 (Flow)

*2815764 *

PROCESSING OPERATIONS CONTROL
OMI PLANNING SHEET

USA VM 062

Wad Number	SITE	Elem CD	End Item	
V6028.001-A03-R02	DFRF	V	104 FLT: 023	DATE: 01/06/2001 TIME: 11:35:27

Title: POST FLT ORB REUSABLE SURFACE INSULATION RUNWAY ENGINEERING WALKDOWN

Sub Element/Zone: 30 100

Project Work Order No.	Hazard:	SFOC Safety	
	☐ Yes ☒ No	N/A WC 035 USA JAN 6 '01	☒ Local Copy ☐ Firing Room Copy

Authorizing Document	Material & Equipment:	MICR Req'd	OMRS:
ORB423	☐ Yes ☒ No	☐ Yes ☒ No	☒ Yes ☐ No

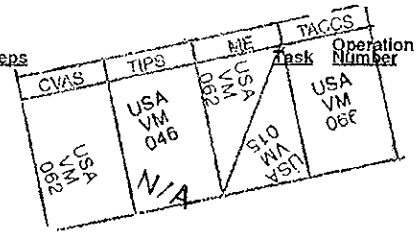
PERFORM THE FOLLOWING:

Pre-Ops Setups

Task	Operation Number	Seq	Steps	Task	Operation Number	Seq	Steps

OPS Support

Task	Operation Number	Seq	Steps	Task	Operation Number	Seq	Steps



Operating Instructions

Task	Seq	Steps	Task	Seq	Steps
	010				
	020				

USA VM 011

Post Ops

Task	Operation Number	Seq	Steps

USA VM 047

Appendices

Task	Seq
N/A	

USA VM 031

Subtask WAD's

N/A

Planner	Ext	QC Closure	Date	Page
AARON MCCLOUD WC 035 USA JAN 6 '01	6523	SPC 867	FEB 23 '01	1 OF 1

USA 32-82 Rev 05-99 (Flow)

OMI TASK CLOSEOUT CHECKLIST

OMI No.	Run No.	Task Control No. (TCN)
V60028.001 Rev. A-03	Run 2	28157641
Start Date	**Completion Date**	**Closure Date**
2/20/01	2/20/01	2/23/01

		QC/Eng.	Date
1.	Deviation Index: Verify total number of deviations agree with index. Verify entry is correct into OMI.	SPO 267	FEB 23 '01
2.	Constraints List: Verify all constraints are accepted by QC or waivered by Engineering. Verify that constraints list is complete and closed.	SPO 267	FEB 23 '01
3.	IPR's: Verify that all IPR's are closed or upgraded to problem reports or dispositioned as no constraint to OMI closure and incorporated in central IPR system and a copy of the central IPR sort attached.	SPO 267	FEB 23 '01
4.	Verify that material and equipment requirement list enclosed (if applicable).	SPO 267	FEB 23 '01
5.	OMI: Verify that all pages or verification sheets are completed, stamped, and dated in the lower left/right hand corners.	SPO 267	FEB 23 '01
6.	OMI: Verify that all miscellaneous documents/procedures have sequence number referenced and stamped; e.g., photos, sample results, etc.	SPO 267	FEB 23 '01
7.	Planned task/OMI satisfactorily completed. OPR: [signature] MICKLOS 20FEB01	SPO 267	FEB 23 '01
8.	LSS review prior to closure for CIL OMI's. MMC [signature] Thiokol [signature]		FEB 23 '01

KSC FORM 4-471 (REV. 11/94) PREVIOUS EDITIONS ARE OBSOLETE

APPROVED

DATE: 10-01-1998 TIME: 1258

OMI V6028.001

REVISION: A CHANGE: 3

POST FLT ORB REUSABLE SURFACE INSULATION RUNWAY ENGINEERING WALKDOWN

ELEMENT/END ITEM EFFECTIVITY: **102, 103, 104, 105**

FACILITY EFFECTIVITY: **AAFB, BANJUL, BENGUE, DFRF, ELS, HAFB, MORON, SLF, WSSH, ZARAG**

INTERVAL/USAGE EFFECTIVITY: **NA**

PROCESS VARIABLE: **NA**

REVISION EFFECTIVITY: **105/011 And Subs; 104/016 And Subs; 102/020 And Subs; 103/022 And Subs**

TTL ORG: **SE**

OPR: **TPS**

CONTENTS

1.0 INFORMATION

1.1 Objective

To perform post-landing survey/inspection of Orbiter Thermal Protection Subsystem (TPS) to determine if components exhibit obvious damage that would require reservicing, repair, redesign or replacement.

1.2 Special Instructions

All Operations

1. Suspect nonconformances shall be augmented by various other nondestructive methods (shims, etc.).
2. Unless otherwise specified, inspection(s) shall be accomplished visually.
3. Handling or movement of components shall be held to a minimum.
4. Inspection steps may be performed out of sequence and/or concurrently in different areas.
5. Special precautions in handling RSI:
   - RSI ceramic tiles are very fragile and easily damaged. The highly porous, low density ceramic fibermat core is exceptionally low in tensile and compression strengths. Glaze on five faces of the tile is a thin brittle glass over a core offering very low resistance to crushing stresses. Slight finger pressure can often fracture the glaze making repair or replacement necessary. Exterior glass fabric or flexible insulation blankets, gap fillers and thermal barriers are easily snagged, abraded and damaged. RSI replacement and repair is difficult, expensive and time consuming.
   - Tile glaze is designed to seal outer surface of tile and provide critical optical properties. Properties may be partially lost or destroyed by fingerprints or contamination on the glazed surface. Contamination on nonglazed faying surface may significantly affect attachment-bonding characteristics.

6. Mandatory precautions in handling RSI:
   - Wear clean white low-lint gloves when handling tile or tile subassemblies and subassembly components (strain isolator pads and filler bars), flexible insulation blankets and blanket components, thermal barriers and/or gap fillers.
   - Handle delicate tiles and tile subassemblies with extreme care to avoid fracturing the thin brittle glass surface glaze by squeezing, bumping or dropping.
   - Use extra caution to avoid bumping RSI when positioning work stands in RSI work or storage areas.
   - Comply with tethering/taping instructions.
7. During inspection, adequate lighting shall be obtained if not available in inspection area.

1.3 Operations List

Operation		Shop/ Cntl Rm Console	OPR	Haz (Y/N)	Duration (Hrs)
No.	Title				
0010	TASK TEAM READINESS	TPS / NONE	TPS	N	0.300
0020	TPS ENG LANDING QUICK LOOK	TPS / NONE	TPS	N	2.000

2.0 SAFETY INFORMATION

2.1 Hazards - NA

2.2 Safety Requirements - NA

2.3 Personal Protective Equipment Required - NA

2.4 Reference Safety Documentation

Number	Rev	Title
KHB 1710.2	LI	KSC Safety Practices Handbook
GSOP-5400	LI	Grnd. Saf. Operating Proc.

3.0 STAGING REQUIREMENTS

3.1 Referenced Engineering Documentation

3.1.1 Drawings - NA

3.1.2 Documents - NA

3.2 Parts, Materials, Equipment, and Special Tools

3.2.1 Flight Parts - NA

3.2.2 Flight Materials - NA

3.2.3 Non-Flight Parts - NA

3.2.4 Non-Flight Materials - NA

3.2.5 Shop Support Materials - NA

3.2.6 Equipment - NA

3.2.7 Tools and Test Equipment - NA

3.2.8 Personal Protective Equipment - NA

3.2.9 Vendor Supplied Parts - NA

3.2.10 Vendor Supplied Materials - NA

4.0 PLANNING REQUIREMENTS

No OIR required.

4.1 Critical Skill Requirements - NA

4.2 Operational Configuration Requirements

Reserved for future use.

4.3 LPS Requirements - NA

4.4 Support Services, Commodities, and Equipment

4.4.9 Vehicles, Ground Support Equipment, and Special Equipment

- (1) A72-0812, Access Stand, 11 to 29 ft
- (2) Hi-Ranger, 50 ft

4.4.13 Other Support (KSC)

- Nondedicated support shall be requested via STS/Payload KSC Integrated Control Schedule.

4.5 Supporting Subtasks - NA

5.0 CONFIGURATION ACCOUNTING AND VERIFICATION

5.1 Specific OMRS Requirements Satisfied by this TOP

OMRS No. / (CIL No.)		Nomenclature/Effectivity	Step (CAP)
V09AJ0.097		POST LANDING RUNWAY QUICK LOOK INSP	0020-0001
(3)	L03	V02F14-90 V03F16-90 V04F14-90 V05F4-90	

5.2 General OMRS Requirements - NA

5.3 Configuration Verification Recording - NA

5.4 Scan Activity - NA

5.5 List of References

Dwg/Doc No.	Rev	Title
JSC 11189	LI	Space Shuttle Control Nomen
ML0601-0002	LI	RSI Accept Criteria,Oper Veh
NSTS 08242	LI	Limit For Mat/Equip Near Orb
V070-190001	LI	Wing TPS Installation
V070-190002	LI	Wing/Fuslg Cls/Out TPS Instl
V070-198000	LI	IB Elvn Aerotherm seal Instl
V070-198001	LI	OB Elvn Aerotherm Seal Instl
V070-199200	LI	RCC Wing Leading Edge Instl
V070-199900	LI	Wing Lead Edge Fitting Instl
V070-290101	LI	Vert Stabilizer TPS Instl
V070-290102	LI	Vert Stab to Fus TPS Instl
V070-359001	LI	OMS Pod to Aft Fuselge Instl
V070-391001	LI	Fwd Fuselage RSI Instl
V070-391002	LI	RCS Module Fwd Fuselge Instl
V070-391028	LI	Tile Instl Fwd Fuselage/FRCS
V070-394001	LI	Mid Fuselage RSI Instl
V070-394002	LI	Mid/Fwd Fuselage TPS Cls/Out
V070-394003	LI	Mid/Aft Fuselage TPS Cls/Out

DATE: **10-01-1998** TIME: **1258**

OMI V6028.001

REVISION: **A** CHANGE: **3**

Dwg/Doc No.	Rev	Title
V070-395001	LI	Aft Fuselage TPS Instl
V070-395002	LI	Body Flap TPS Instl
V070-395900	LI	Base Heat Shield TPS Instl
V070-396003	LI	OMS/RCS Mate TPS Instl
V070-397001	LI	RSI Instl Fwd PLBD
V070-397501	LI	RSI Instl Aft PLBD
V070-398500	LI	Seal Instl PLBD
V070-399100	LI	B/F Aerothermal seals Instl
V070-399200	LI	RCC Nose Cap Instl

OPERATION 10 TASK TEAM READINESS

Operation ID:

Shop: TPS

Cntl Rm Console: NONE

OPR: TPS

Zone: 100

Call To Stations

10-1
[1-1]

Verify constraints status.

TTL TH 39 20 FEB 01

10-2
[1-2]

Verify following personnel on station and ready to proceed with inspection.

TTL TH 39 20 FEB 01

Table 1. Required Personnel	
NASA JSC TPS Eng (optional)	1
NASA KSC TPS Eng	1
SFOC TPS Eng	1
LSS TPS Eng	1

*** End of Operation ***

FEB 23 01 BPR 867

OPERATION 20 TPS ENG LANDING QUICK LOOK

Operation ID:

Shop: TPS

Cntl Rm Console: NONE

OPR: TPS

Zone: 100

TPS Engineering Team Post-Landing Runway Quicklook Inspection

NOTE

Post-landing runway quicklook inspection is to be performed after scheduled landing immediately following vehicle hazard and safety inspection. For unscheduled landing, perform as soon as practical.

- Engineering shall assess overall vehicle TPS post-flight condition while placing special emphasis on potential impacts to TPS turnaround processing.
- Team shall consist of NASA JSC/KSC, SFOC and LSS TPS Engineering.
- Grossly anomalous conditions must be identified for PR initiation and addressed as soon as practical to support ferry flight and other post-flight turnaround activities.

20-1
[1-1]

TPS Engineering Team perform post-landing Orbiter walkdown visual inspection for gross TPS damage/anomalies. Sign upon completion of inspection.

OMRSD V09AJ0.097

(NASA JSC Scott McCley SMcCLAY Date 2-20-01)

(NASA KSC SE Gill Date 20 Feb 01)

(SFOC SE MICKLOS Date 20FEB01)

(LSS TPS CARTER Date 2-20-2001)

FEB 23 '01

20-2
[1-2]

Engineering and debris team take samples as deemed necessary. Document all samples in Table 2 on page 20-4 (Sample Log). Before any samples are taken, obtain the following concurrence:

(SFOC TPS Eng _____ Date _____)

(NASA TPS Eng _____ Date _____)

(LSS TPS Eng _____ Date _____)

(Not Performed)

Table 2. Sample Log				
Item	Part Number	Location	Remarks TPS Eng Team Signature	N/P
1				NP
2				NP
3				NP
4				NP
5				NP
6				NP
7				NP
8				NP
9				NP
10				NP

NOTE

Do not perform Step 20-3 if no debris samples were taken in the previous step.

20-3
[2-1]

Route samples with P/N, vehicle location and other pertinent data to NASA Debris Team Leader for analysis.

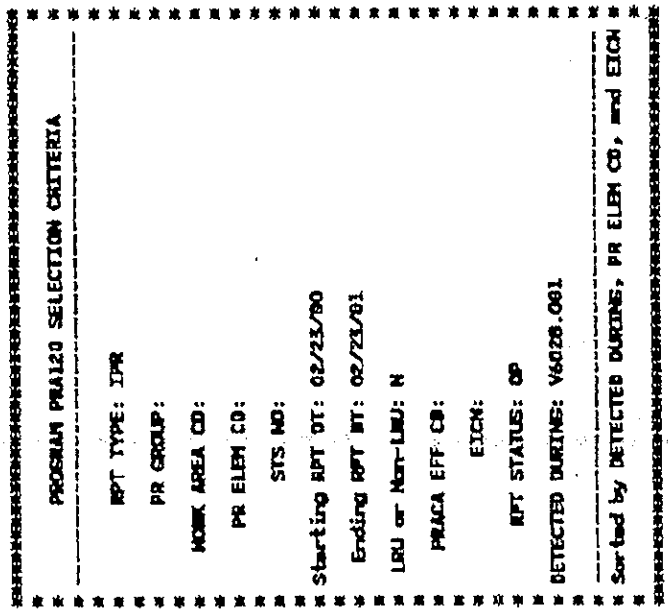
SFOC TPS Eng _____ Date _____

Not Performed 39 TH 20 Feb 01

*** End of Operation ***

FEB 23 01

BPC 257



2/23/01

BPC 867

PAGE: 1

PROBLEM REPORTING AND CORRECTIVE ACTION SYSTEM
PROBLEMS BY DETECTED DURING

DATE: 02/23/01 15:50
REPORT CODE: PRAI200A

****
* *
* NO DATA FOUND ON THE DATABASE FOR THE SELECTED PARAMETERS *
* *
****

****
* *
* END OF REPORT *
* *
****

2/23/01